Problem D. Puzzle: Nurikabe

"*In my next contest, I want you to solve a nurikabe puzzle with only two clues*"
"*Sounds too easy. Let me write a solution!*"
"*Ah, are you sure? Have you solved a problem called Fillomino by Yuhao?*"
"*Hmm, wait...*"
— Little Cyan Fish and a random judge

Little Cyan Fish is a fan of logic puzzles. Today, he is playing a special version of the classic puzzle "Nurikabe" (ぬりかべ).

The puzzle is played on an $n \times m$ grid. We refer to the cell in the x-th row and y-th column as (x, y), where $1 \le x \le n$ and $1 \le y \le m$.

The goal is to shade some (possibly zero) cells *black*, leaving the remaining cells *white*. The black and white cells form connected *regions*, where cells are considered connected if they share a side (horizontally or vertically, not diagonally). Formally, two cells with the same color $C_1(x_1, y_1)$ and $C_2(x_2, y_2)$ are considered in the same region if and only if at least one of the following condition holds:

- $|x_1 - x_2| + |y_1 - y_2| = 1$
- There exists another cell $C_3(x_3, y_3)$ with the same color, such that C_1 and C_3 are in the same region, and C_2 and C_3 are in the same region.

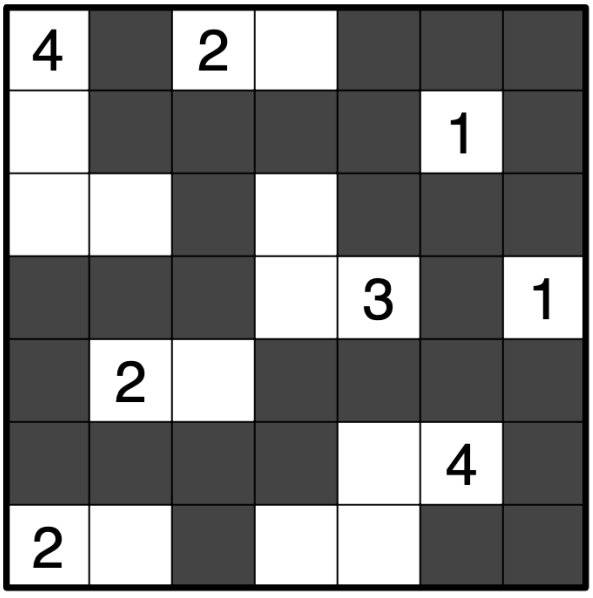

Figure 4: A sample grid for $n = 7$ and $m = 7$.

Clues are those numbers placed in a specific cell. Cells with a *clue* **cannot** be shaded black.

The shaded (black) cells must satisfy the following two conditions:

- **(Connectivity)**: All black cells must belong to a **single** black region.
- **(2×2-free)**: No 2×2 block of cells can be entirely black.

The unshaded (white) cells must satisfy the following two conditions:

- **(One Clue a Region)**: Each white region must contain **exactly one** clue.
- **(Size Constraint)**: The area (number of cells) in each white region must equal the value of the clue within that region.

For example, Little Cyan Fish considers the following four solutions incorrect because:

- In the first solution, there is a 2×2 group of cells shaded in black.
- In the second solution, there is more than one black region.
- In the third solution, the white region in the top-left corner contains more than one clue.
- In the fourth solution, the white region in the bottom-left does not contain any clues, and the white region in the bottom-right corner does not meet the area requirement.

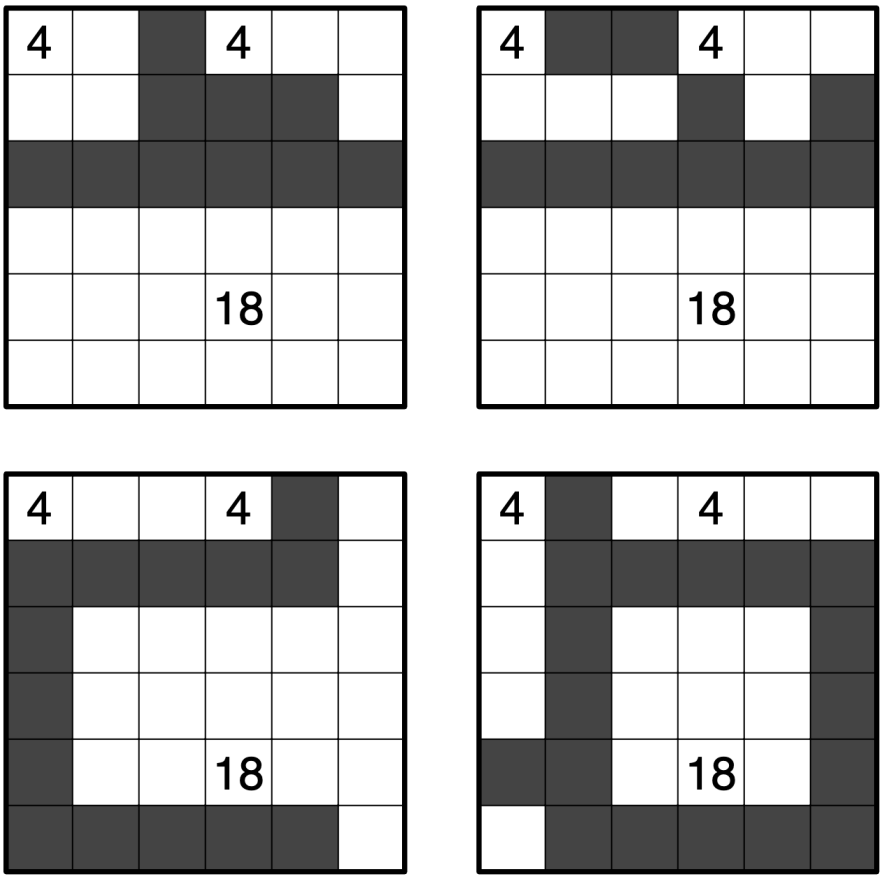

Figure 5: Wrong solutions for a given puzzle

And the following solution is a correct solution.

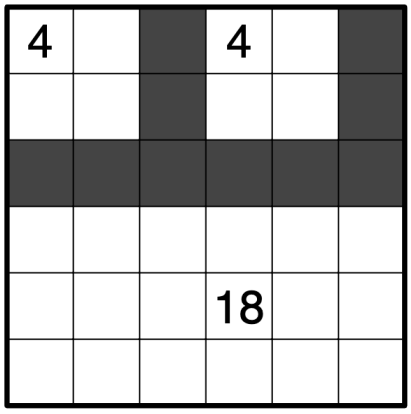

Figure 6: A correct solution for a given puzzle

Now, you are given a nurikabe puzzle with **exactly one clue**. You need to give a solution to this puzzle.

Input

There are multiple test cases. The first line of the input contains a single integer T ($T \geq 1$), indicating the number of the test cases. For each test case:

The first line of the input contains two integers n and m ($n, m \geq 1$), indicating the length and the width of the grid.

The next line of the input contains three integers i, j, x ($1 \leq i \leq n$, $1 \leq j \leq m$, $1 \leq x \leq n \cdot m$), indicating the only one clue located in cell (i, j) with the number x.

It is guaranteed that the sum of $n \cdot m$ over all test cases does not exceed 10^6.

Output

For each test case:

If it is impossible to shade some cells to satisfy all the requirements, output a single line "`No`".

Otherwise, the first line of the output should contain the word "`Yes`".

The next n lines of the output describe your solution. The i-th line of these lines should contain exactly m characters, either "`.`" (a dot) or "`#`" (a number sign) . The j-th character describes the status of the cell (i, j).

- If the character is "`.`", it means that the cell is unshaded (white).
- If the character is "`#`", it means that the cell is shaded (black).

Example

standard input	standard output
4 3 3 2 2 1 5 5 2 2 1 4 6 1 1 20 2 5 2 5 10	Yes ### #.# ### No Yes .... #..... ###... Yes ....

Note

Want to find some joy after solving all the problems? Here it comes.

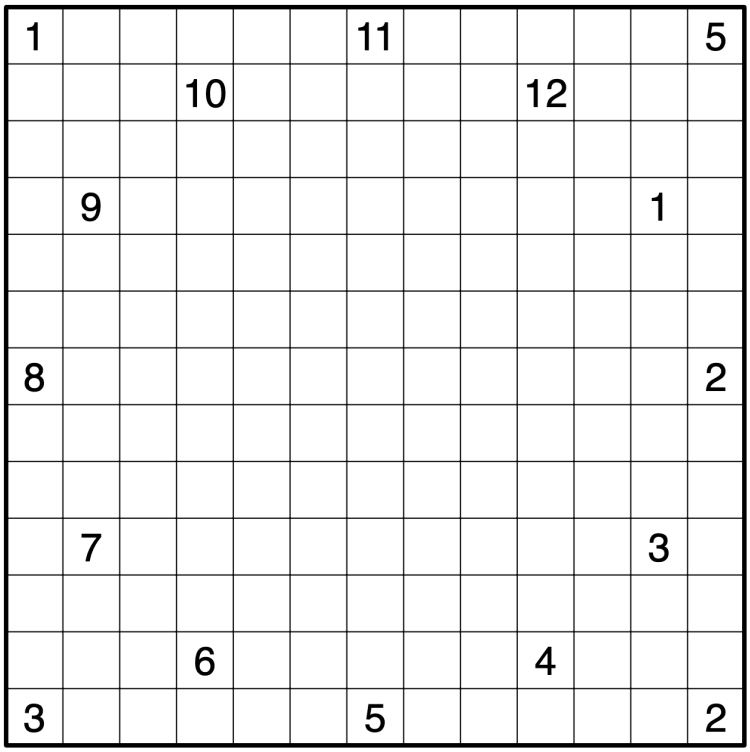

Figure 7: The 2nd Universal Cup Puzzle Contest: Nurikabe (credit to apiad)